



The Office of the National Coordinator for  
Health Information Technology

# S&I Framework Initiatives

Provider Directory Workshop

April 5, 2016

# Provider Directories (PD) Initiative – *Overview*



- This Initiative addresses the challenge of querying for and obtaining digital certificates and electronic service information to enable health information exchange
- The initiative focused on two use cases:
  1. Discovering digital certificate(s) associated with a known Direct Address
  2. Discovering the Electronic Service Information with known provider attributes
- Community includes 63 Committed and 55 Non-Committed (i.e., “interested”) participants

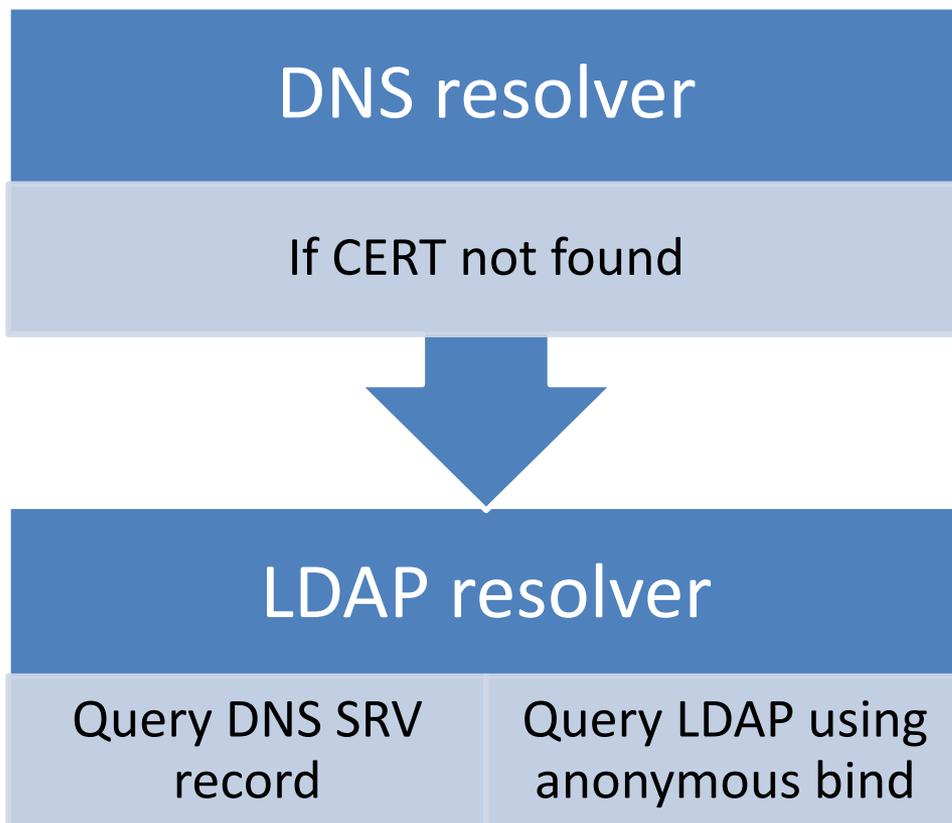
## **FOCUS ON THE MISSION:**

- Enable healthcare participants to look up digital certificate information to facilitate secure exchange of information through Direct Project
- Help HIEs/EHRs/PDs to enable query and response for electronic service information including electronic addresses, with corollary benefits to data governance, PD instantiation, HIE/EHR development and deployment, etc.



## Discovery of Digital Certificate – *Solution*

A hybrid DNS/LDAP solution was adopted to take advantage of the strength of each method and in combination cover the individual limitations





# Query for Electronic Service Information

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## ***Definition of Electronic Service Information***

- The information reasonably necessary to define an electronic destination and its ability to receive and consume a specific type of information (e.g. discharge summary, patient summary, laboratory report).
- The information should include the destination's electronic address, message framework, payload specification, and required security artifacts.



# Query for Electronic Service Information Initiative Artifacts

- Minimum data set, data model and schema for Provider Directories
- Specific query and response behaviors
- Mapping the dataset, data model and schema – to standards for LDAP/x.500, HPD, and ASC X12 and identify gaps
- Work with standards organizations to incorporate identified gaps into future releases – e.g. HPD+

PD Consumer

HIE / EHR / Other	Standard Query and Response Data Set and Behaviors	LDAP
		HPD
		X12
		Other

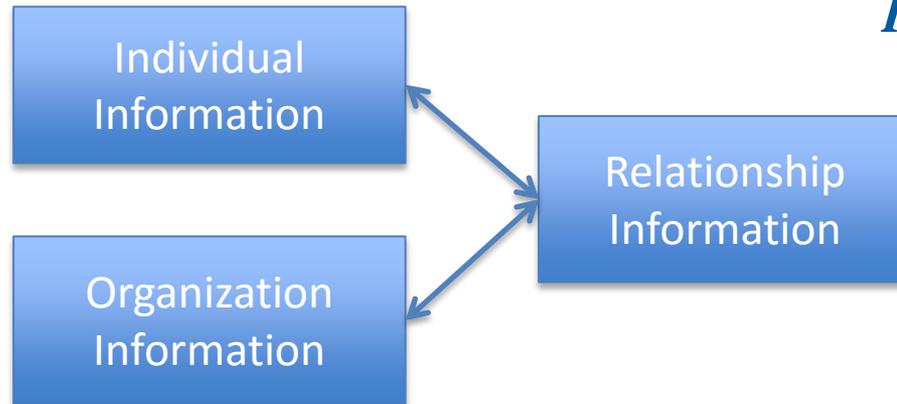
# Query for Electronic Service Information – *Data Set Overview*



*Illustrative*

## Query

- PD identifier
- Individual, Organization, and Relationship
  - Unique Identifier
  - Name
  - Address
  - Type / Specialty
  - Telephone Number
  - NPI
  - Email
  - Digital Certificate Attributes
  - Electronic Service Information



## Response

- PD information
- Individual Information
- Organization Information
- Relationship Information
- Digital Certificate Information
- Electronic Service Information

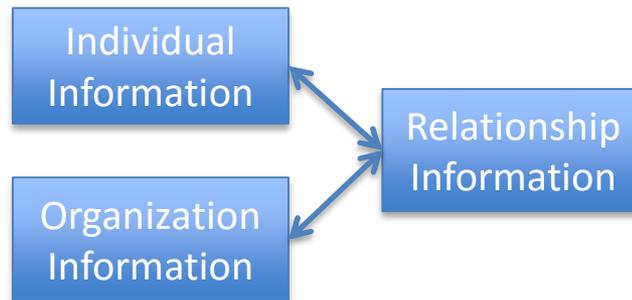
# Query for Electronic Service Information – *Data Set Overview – Query Detail*

## Provider Directory Information

- PD identifier and name

## Individual Information

- Unique Identifier(s)
- Name and alias(es)
- Address(es)
- Gender
- Type
- NPI
- Degree(s)
- License(s)
- Certification(s)
- Specialty(ies)
- Contact Information (telephone, email)
- Digital Certificate Information
- Personal ESI



## Organization Information

- Unique Identifier(s)
- Name and alias(es)
- Address(es)
- NPI(s)
- Type(s)
- Certification(s)
- Specialty(ies)
- Contact Information (telephone, email)
- Organizational Policy Information
- Digital Certificate Information
- Organization ESI

## Relationship Information

- Individual-Organization Information
  - Relationship specific contact information (telephone, email)
  - Relationship specific Digital Certificate Information
  - Relationship specific ESI

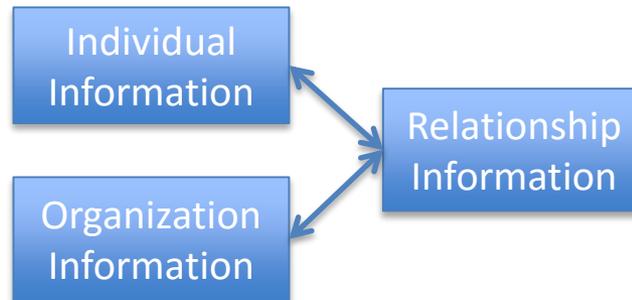
# Query for Electronic Service Information – *Data Set Overview – Response Detail*

## Provider Directory Information

- PD identifier and name

## Individual Information

- Unique Identifier(s) and Status
- Name and alias(es)
- Address(es)
- Gender and DOB
- Type
- NPI
- Degree(s)
- License(s)
- Certification(s)
- Specialty(ies)
- Contact Information (telephone, email)
- Digital Certificate Information
- Personal ESI



## Organization Information

- Unique Identifier(s) and Status
- Name and alias(es)
- Address(es)
- NPI(s)
- Type(s)
- Certification(s)
- Specialty(ies)
- Contact Information (telephone, email)
- Organizational Policy Information
- Digital Certificate Information
- Organization ESI

## Relationship Information

- Organization-Organization Relationships
- Individual-Organization Relationships
  - Relationship specific contact information (telephone, email)
  - Relationship specific certificate
  - Relationship specific ESI



# Query for Electronic Service Information – *Data Set Overview – ESI detail*

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- Unique ESI identifier (required)
- Integration Profile Information
  - Integration Profile (required)
  - Integration Profile Version
  - Integration Profile Options
- Content Profile Information
  - Content profile
  - Content profile version
  - Content profile constraints
- Security Profile Information
  - Security profile
  - Security profile version
  - Security profile options
- Address (Electronic) of Service (required)
- Preferred Method (required)

## **Example 1 – Direct (C-CDA payload)**

- ESI ID: f81d4fae-7dec-11d0-a765-00a0c91e6bf6
- Integration Profile: DirectProjectSMTP
- Content Profile: C-CDA
- Content Profile Version: 2.1
- Address: <https://john.smith@direct.health.org>
- Preferred: 2

## **Example 2 – NwHIN**

- ESI ID: 550e8400-e29b-41d4-a716-446655440000
- Integration Profile: PatientDiscovery:2.0
- Address: <https://health.org/PatientDiscovery.wsdl>
- Preferred: 1

## **Example 3 – X12 (Core X12 270/271)**

- ESI ID: eb424026-6f54-4ef8-a4d0-bb658a1fc6cf
- Integration Profile: CAQH CORE Connectivity Rule
- Content Profile: X12N 270/271
- Content Profile Version: 005010 X279 X279A1
- Address: <https://health.org/Core5010x279.wsdl>
- Preferred: 1

# Query for Electronic Service Information – *Data Set Overview – Behavior Detail*

Query	Query Name	Query Description
1	Find Individual	Request a list of individuals by specifying one or more individual attributes.
2	Find Unique Individual	Request a specific individual by specifying the individual unique reference ID.
3	Find Organization	Request a list of organizations and relationships to other organizations by specifying one or more organization attributes.
4	Find Unique Organization	Request a specific organization and relationships to other organizations by specifying the organization unique reference ID.
5	Find Organizations for Unique Individual	Request a specific individual and related organizations by specifying an individual unique reference ID and one or more attributes of organizations. Organizations and relationships to the specified individual are returned when the organization matches the organization attributes and has a relationship to the individual specified. Attributes on the relationship between the individual and organization can also be specified in this query and further constrain which organizations and relationships are returned.
6	Find Individuals for Unique Organization	Request a specific organization and related individuals by specifying an organization unique reference ID and one or more attributes of individuals. Individuals and relationships to the specified organization are returned when the individual matches the individual attributes and has a relationship to the organization specified. Attributes on the relationship between the individual and organization can also be specified in this query and further constrain which individuals and relationships are returned.
7	Find Individuals and Organizations	Request a list of individuals, organizations and relationships between (individuals/organizations or organization/organization) based on attributes of individuals, organizations, and individuals/organization relationships. Response includes all objects (whether individual, organization or relationship) where the individuals match all of the individual attributes specified, the organizations match all of the organization attributes and where a relationship exists between each individual and one or more organizations returned. In the event the query includes one or more attributes regarding the relationship, then each relationship returned must match all the attributes specified. For each organization returned, all its relationships, as parent or child, with other organizations are returned.



# Query for Electronic Service Information – Data Set Overview – Behavior Detail (alt format)

Query				Response			
PD	Individual	Organization	Relationship	PD	Individual	Organization	Relationship
	Any fields			Yes	All matches		
Yes	ID			Yes	One Individual		
Yes	ID	Any fields	Optional	Yes	One Individual	All matches	Have relationship
		Any fields		Yes		All Matches	
Yes		ID		Yes		One Organization	
Yes	Any Fields	ID	Optional	Yes	All matches	One Organization	Have relationship
Yes	ID	ID		Yes	One Individual	One Organization	Have relationship
	Any fields	Any fields	Optional	Yes	All matches	All matches	Have relationship

PD -- unique provider directory reference

ID -- unique id for individual or organization



# Query for Electronic Service Information – *Next Steps*

To complete the Provider Directory Query for Electronic Service Information S&I effort, the following steps are recommended

- Establish standard, free, code sets for use by all members of the community for all coded data elements of this initiative
- Provide detailed implementation descriptions for the data set and its mappings to ensure that implementers understand the appropriate use of the data set, its elements, and the query and response behaviors. This facilitates, with a limited effort, that the various instantiations of these provider directories and their consumers are more capable of interoperating.

